

Efficient and Compact Semiconductor Laser Transmitter Modules, Phase I

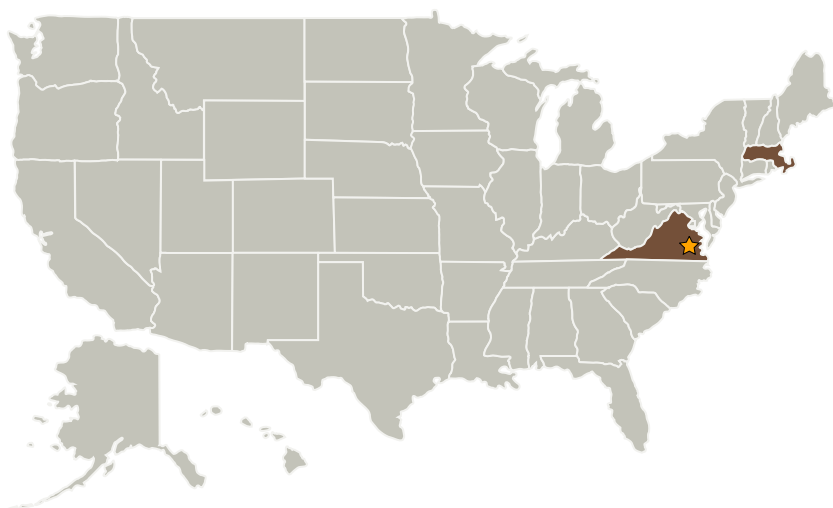
Completed Technology Project (2009 - 2009)



Project Introduction

Develop a Compact Transmitter Module (CTM) capable of operating at 1.26 μm , 1.57 μm and at 2 μm complete with all drive and control electronics for the TEC and the laser diode itself reducing size, weight and power while improving performance and reliability. The first part of the approach is to incorporate the electronics within the same hermetically sealed enclosure with the laser chip and associated optics. EM4 will take this basic design and make modifications to reduce size, weight and power consumption using thin film thermoelectric coolers (nano-coolers) to replace conventional TEC. Weight reductions will be realized by using alternative which are composites of Aluminum Silicon (AlSi) and Aluminum Silicon Carbide (AlSiC)

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
EM4, Inc.	Supporting Organization	Industry	Bedford, Massachusetts



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

Massachusetts

Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
 - └ TX05.1 Optical Communications
 - └ TX05.1.3 Lasers